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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,357	09/03/2003	Shingo Kadomura	SON-1426/DIV	3044

7590 05/24/2004

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EXAMINER	
SAVAGE, JASON L	

ART UNIT	PAPER NUMBER
1775	

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/653,357	KADOMURA ET AL.	
	Examiner	Art Unit	
	Jason L Savage	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21,22 and 24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21,22 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/187,226.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09-03-2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 21 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kadomara et al. (US 6,391,437).

Kadomara teaches an aluminum nitride base preform formed by sintering aluminum nitride powder and subsequently infiltrating aluminum into the pores of the aluminum nitride base (col. 25, ln. 28-35). Kadomara teaches that a covering layer ceramic such as alumina or aluminum nitride is used (col. 26, ln. 46-54). Kadomara further teaches that an intermediate underlayer containing 5% nickel may be applied between the aluminum nitride/aluminum matrix material (col. 25, ln. 51-56).

Regarding the process limitations in the claim, the claims are drawn to an article, not the method of making. Absent a teaching or showing that the claimed method steps would result in a product that is distinct from the product of Kadomara, it would not overcome the cited prior art since it meets all of the product claim limitations.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kadomara et al. (US 6,391,437).

Kadomara teaches what is set forth above however it is silent to pouring the molten base aluminum together with silicon lumps. However, the claims are drawn to the article, not the method of making. Kadomara teaches that the base composite material may be infiltrated with an aluminum and silicon alloy (col. 26, ln. 46-54). Absent a teaching of the criticality of the silicon being in a lump form when infiltrating, it does not provide a patentable distinction over the composite base material of Kadomara wherein an Al-Si alloy is infiltrated into the aluminum nitride porous sintered ceramic.

5. Claims 21-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over White el al. (US 5,395,701) in view of Jackson et al. (US 5,418,015).

White teaches an aluminum nitride base ceramic which is infiltrated with aluminum and further comprising an aluminum nitride covering (col. 4, ln. 53-67). While White is silent to sintering the aluminum nitride particles, it acknowledges that aluminum matrix composites formed by sintering the particulate material is known in the art (col. 1, ln. 47-60). It would have been obvious to one of ordinary skill in the art to have sintered

the aluminum nitride particles prior to infiltrating the aluminum matrix metal since such a process is conventional in the art.

White is silent to the use of an intermediate underlayer however Jackson teaches that undercoatings are sometimes employed to provide compatibility with the substrate and covering layer as well as to provide oxidation resistance (col. 5, ln. 49-62). It is well settled that the test of obviousness is not whether the features of one reference can be bodily incorporated into the structure of another and proper inquiry should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, and the overriding question to be determined is whether those concepts would suggest to one of ordinary skill in the art the modifications called for by the claims, In re Van Beckum, 169 USPQ 47 (CCPA 1971), In re Bozek, 163 USPQ 545 (CCPA 1969); In re Richman, 165 USPQ 509 (CCPA 1970); In re Henley, 112 USPQ 56 (CCPA 1956); In re Sneed, 218 USPQ 385 (Fed. Cir. 1983).

In response to the issue whether the reference is nonanalagous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved, In re Wood, 202 USPQ 171, 174. In the instant case, both White and Jackson are drawn to providing ceramic coating layers to a substrate in order to improve the wear resistance of the substrate. It would have been obvious to one of ordinary skill in the art to have used an undercoating layer in the composite of White with a reasonable expectation of success that the undercoating

layer might provide greater compatibility between the metal matrix material layer and the covering layer.

The references are silent to the limitation that the undercoat comprise 5% of nickel. However, absent a teaching of the criticality that the undercoat contain the claimed amount of nickel it would merely be a design choice. It would have been within the purview of one of ordinary skill in the art to determine what undercoating materials would provide a suitable increase in compatibility between the two exterior layers.

Regarding the process limitations in the claim, the claims are drawn to an article, not the method of making. Absent a teaching or showing that the claimed method steps would result in a product that is distinct from the product of White in view of Jackson, it would not overcome the cited prior art since it meets all of the product claim limitations.

Regarding claim 22, White it is silent to pouring the molten base aluminum together with silicon lumps. However, the claims are drawn to the article, not the method of making. White teaches that the metal matrix material may be an aluminum and silicon alloy (col. 8, ln. 35-47). Absent a teaching of the criticality of the silicon being in a lump form prior to infiltration, it does not provide a patentable distinction over the composite base material of White in view of Jackson wherein an Al-Si alloy may be selected as the matrix metal.

6. Any inquiry to this communication or earlier communications from the Examiner should be directed to Jason Savage, whose telephone number is (703)305-0549. The Examiner can normally be reached Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on (703)308-3822.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jason Savage

5-12-04

DEBORAH JONES
SUPERVISORY PATENT EXAMINER